

phase, peak time, freight traffic). These phases are arranged so that they do not affect the movement of passenger trains in the morning and evening rush hours. In terms of transport time, rail transport is becoming more competitive in comparison with automotive. The new schedule is set as follows way to avoid overloading the rail network. This means that the railway infrastructure will be used much better than before. It will be implemented by the existing system "CIS-Online", which will allow the reservation of a freight train for a place for their own cars.

So, single wagon load and group shipments are becoming more transparent and based on customer requirements, which allows adapting the technology of transportation of the railroad to the growing logistics requirements. The introduction of the above described approach will improve the competitiveness of long distance carriage and group shipments and reduce the risks in the shipping process for the consignor.

#### **References:**

1. Gérard Lumignon. Ein neues Zeitalter im Wagenladungsverkehr [Electronic resource] / Gérard Lumignon – Resource Access Mode: <http://www.logistiktransport.ch/de/news/national-archiv-detail/ein-neues-zeitalter-im-wagenladungsverkehr.htm>
2. Hartmeier. SBB Cargo schafft Taktfahrplan für Güterverkehr [Electronic resource] / Hartmeier – Resource Access Mode: <http://www.bahnonline.ch/bo/16722/sbb-cargo-schafft-taktfahrplan-fuer-gueterverkehr.htm>

## **ANALYSIS OF DATA MODEL TYPES FOR BIG DATA REPRESENTATION**

**Anastasiia Besedina**, student

**Maryna Bulaienko**, Associate Professor, PhD in Technical Sciences, Research Advisor

**Viktoriia Buhaieva**, Senior Teacher, Language Consultant

*O. M. Beketov National University of Urban Economy in Kharkiv*

The process of building an information model of a region is complicated by the diversity of data models, as well as the presence of different levels of data aggregation. One of the popular technologies for developing territorial management systems is Big Data. Methods of machine learning and data visualization allow you to process and graphically present the results of the analysis of large volumes of data (millions of tuples).

A data model is a collection of tools for describing data structures for an application or class of applications. The data model includes data types, data structures, a system of operations, means for describing constraints. Big Data technologies are associated with the need to process information of various types: structured, semi-structured, unstructured.

When using the structured data model, the data is subject to previously known limitations on the type and length of each attribute; the data structure is known and defined using the data schema; its automatic modification during the model operation is difficult. Interpreting data without knowing the scheme is impossible. An example of a structured data model implementation can be any relational database management system (DBMS).

Developing a model for unstructured data is extremely difficult for the following reasons: data is usually presented in a natural language, which makes it difficult to work with it; the complete absence of a certain structure imposes serious restrictions on possible operations with data. The automatic allocation of the structure in such data, as a rule, cannot be performed in an unambiguous way.

Semi-structured data is any intermediate data between structured and unstructured. The structure in such data may be incomplete, underdetermined, and also permit exceptions. When working with data, the degree of its correctness is not known in advance, and, as a result, the necessary tools are also unknown for assessing the 'correctness' of the data. Thus, there must be an exception handling tool in this model that allows you to formulate a method for querying this data based on predefined criteria.

The paper analyzes the three main methods for presenting semi-structured information:

- 1) OEM (Object Exchange Model);
- 2) XML (Extensible Markup Language);
- 3) RDF (Resource Description Framework)

The XML language is a subset of the SGML language (Standard Generalized Markup Language). SGML is a system for describing structured document types and markup languages for document copies of such types. This language allows you to divide any document into two logically independent parts; one of them defines the structure of the document, and the other contains the text itself. The structure definition is called the Document Type Definition (DTD).

## **MATHEMATICAL METHODS OF BIG DATA REPRESENTATION**

**Kateryna Bielenkova**, student

**Maryna Bulaienko**, Associate Professor, PhD in Technical Sciences, Research Advisor

**Viktoriia Buhaieva**, Senior Teacher, Language Consultant

*O. M. Beketov National University of Urban Economy in Kharkiv*

K. Lynch, D. Laney define Big Data as a set of methods and tools for processing structured and unstructured heterogeneous dynamic data of large volumes with the purpose of their analysis and use to support decision making.

Examples of sources of origins of big data can be continuously incoming data from measuring devices, meteorological data, data of remote sensing of the